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Glossary of Terms Relating to Water

Part 3 Marine Water and Related Methods

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Water Quality Sectional Committee had been approved by the Chemical Division Council.

IS 7022 (Part 1) defines terms widely used in relation to water, sewage and industrial effluents. IS 7022 (Part 2) defines terms widely used in relation to water supply and sewerage. In the Eighteenth meeting of the Chemical Division Council, the scope of IS 7022 was revised to add ‘Characterization of Marine Water’. Hence, in accordance with the new scope, it was decided by the Committee to formulate a standard for the terminology of marine water and associated methods.

Marine regions cover about three-fourths of earth’s surface and include oceans, coral reefs, lagoons and estuaries. Due to the abundance of marine water in our ecosystem, it is necessary to have a standard for the terminology of marine water and associated methods.

Indian Standard

GLOSSARY OF TERMS RELATING TO WATER

PART 3 MARINE WATER AND RELATED METHODS

1 SCOPE

This standard defines terms widely used terms in relation to marine water and associated methods.

2 TERMINOLOGY

A

Absorption

Penetration of a liquid or gas into the body of another substance without chemical reaction.

Abyssal Zone

Oceanic environment close to very deep-sea floor. This part of the ocean, deeper than 2 000 m has mostly uniform environmental conditions.

Adsorption

Taking up of gases, liquids or dissolved substances on the surface of solids without chemical reaction.

Alkalinity

Alkalinity is a measure of buffering capacity of seawater to neutralize acids. Therefore, alkalinity of seawater corresponds to excess of positively charged ions to be balanced mostly by carbonate and bicarbonate ions. Borates, hydroxide, silicates and phosphates also may contribute to alkalinity.

Algae

The simplest plants; may be single-celled (such as diatoms) or quite large (such as seaweeds). The vast majority of these plants relies on photosynthesis for food and therefore is restricted to the upper part of the water column, where there is sunlight.

Alluvial

Refers to particles carried by running water which are deposited when the flow rate decreases.

Anadromous

Ascending from the sea to fresh water for spawning at certain seasons.

Anaerobic

Living or functioning in the absence of dissolved air/ oxygen.

Anoxic

The absence of oxygen; anoxic waters are completely devoid of any dissolved oxygen.

Anthropogenic

Any kind of changes in processes or objects in nature originating from human activities.

Aphotic Zone

The part of the ocean, where no surface light can penetrate. Formally, it is defined as the depth beyond which less than 1.0 percent of sunlight can penetrate.

Assimilative Capacity

The capacity of a natural body of water to receive:

a) Waste waters, without deleterious effects;
b) Toxic materials, without damage to aquatic or human life who consume the water; and
c) BOD within prescribed dissolved oxygen limit.

B

Backwash

Water returning to the ocean from waves washing onto a beach.

Bay

A small body of water partially isolated from the main portion of any major water bodies including lake, sea or ocean. Sometime they are connected through relatively narrow opening or channel.

Beach

The belt or zone along the shore, usually with a gentle slope toward the water, occupied by unconsolidated material, moving sand, or shore drift. The zone from the waterline to the place where there is a marked change in material or physiographic form, or to the line of permanent vegetation (usually the effective limit of normal storm waves).

Benthic Zone

The bottom of a body of water. This region supports the benthos, a type of life that not only lives upon but contributes to the character of the bottom.

Benthos

Aquatic bottom dwelling organisms. These include:

a) Sessile animals, such as sponges, barnacles, mussels, oysters, some of the worms, and many attached algae;
b) Creeping forms, such as insects, snails, and certain clams; and
c) Burrowing forms which include most clams and worms.

Biochemical Oxygen Demand (BOD)

The quantity of oxygen required for the oxidation of organic matter by bacterial action in the presence of oxygen. It is a measure of the strength of organic matter in terms of its ability to deplete oxygen in water. Generally, the standard test consists of measuring the oxygen depletion at 20°C for 5 days.

Biodiversity

Biological diversity; used by marine conservationists most commonly with respect to species diversity. Biodiversity can also encompass habitat or community diversity and genetic diversity within a species.

Biomass

The total amount of biological material present at any given time or over a defined period of time.

Biological Pump

Photosynthetic transfer of carbon as carbon dioxide (CO_2) from the atmosphere to the ocean in the form of organic molecules; carbon is transferred to intermediate and deep-water when organic material sinks and decays.

Bioturbation

The process or mechanism involved in disruption of soft sediment or sand by feeding or burrowing organisms.

Bloom

Large masses of microscopic and macroscopic plant life, such as green algae, occurring in bodies of water.

Blue-green Algae

Prokaryotic organisms with a bacteria-like cell structure and contain photosynthetic pigments. Also termed as cyanobacteria and commonly found in polluted waters.

Brackish Water

Water that has more salinity than fresh water, but not as much as seawater. It may result from mixing of seawater with fresh water, as in estuaries.

Breaker Zone

The coastal areas where ocean surface waves approaching the shore commence breaking, typically in water depths between 5 and 10 metre.

Brine

Highly saline (more than normal seawater) and mineralized water.

C

Carbonate Alkalinity

It is a measure of the alkalinity of water caused by the presence of carbonate (CO_3^{2-}) and bicarbonate (HCO_3^-) anions.

Chemical Oxygen Demand (COD)

The amount of oxygen, expressed in mg per litre, consumed under specified conditions in the oxidation of the organic and oxidizable inorganic matter contained in an industrial waste water, corrected for the influence of chlorides.

Chemosynthesis

Chemosynthesis is the micro-biological conversion of carbon dioxide or methane into organic matter using the oxidation of various chemical components like hydrogen, hydrogen sulphide, ferrous ion or methane as a source of energy.

Chemotroph

Group of organisms received their energy through chemosynthesis.

Chlorinity

A measure of the content of chloride, bromine, and iodide ions in seawater. We may derive salinity from chlorinity by multiplying with 1.806 55.

Chlorophyll

Pigment responsible for trapping sunlight and transferring its energy to electrons, thus initiating photosynthesis.

Clay

Finest fraction of sediment which is characterized with grain size less than 0.002 mm.

Coagulation

a) The process of converting colloidal or finely divided suspended matter into particles of such sizes as can be settled reasonably rapidly by the addition of an appropriate chemical coagulant, by biological processes or by other means; and
b) The process of adding a coagulant and necessary other reacting chemical.

Coastal Upwelling

see **Upwelling**.

Colloids

Finely divided solids (particle size varying from 10^{-3} to 10^{-7} cm) which will not settle but may be removed by coagulation or biochemical action.

Coral

A group of reef building marine invertebrates; belonging to class Anthozoa of phylum Cnidaria. The colony of the coral is known as coral reef.

Coriolis Effect

The apparent deflection of a moving object from its initial course when its speed and direction are measured in reference to the surface of the rotating Earth. The object is deflected to the right of its anticipated course in the Northern Hemisphere and to the left in the Southern Hemisphere. The deflection occurs for any horizontal movement of objects and has no effect at the equator.

Creek

Narrow coastal waterways or small outlets of sea or lake commonly found in salt marsh or mangrove areas.

CTD

It is abbreviation for Conductivity-Temperature-Depth, oceanographic instrument with multiple sensors, used to determine the *in situ* conductivity, temperature and depth of the oceanic water column.

Current

The flow of water in the sea, generated by winds, tides or thermohaline circulation.

D

Delta

A low-lying plain or landform that occurs at the mouth of a river near where the river flows into the ocean or other body of water. Such landform at river mouth develops by deposition of sediment carried by a river as the flow velocity drops near the estuary.

Denitrification

The natural chemical process involving conversion of dissolved nitrite nitrogen to nitrate and finally to gaseous nitrogen, removing it from the aquatic system.

Density

The mass per unit volume of a substance, usually expressed in grams per cubic centimetre (g/cm^3); the mass of a substance for a given volume.

Density Stratification

The formation of layers in the water column, with each deeper layer being denser (weighing more per unit of volume) than the layer above.

Desalination

A means of obtaining potable water from sea water, employed mainly in arid parts of the world and by some ships.

Detritus

Any loose material, especially decomposed, broken, and dead organic materials available in water bodies.

Diatom

Microscopic unicellular or colonial algae constituting the class Bacillarieae and having silicified cell walls. They are of great importance in self-purification of natural waters and as food for many other forms of aquatic life.

Dinoflagellate

One of a class of microscopic single-celled flagellates, not all of which are autotrophic. The outer covering is often of stiff cellulose. Planktonic dinoflagellates are responsible for “red tides”.

Dispersion

The movement and spreading of contaminants from the point source of introduction in an aquifer or surface water body.

Dissolved Oxygen (DO)

The oxygen dissolved in sewage, water or other liquid usually expressed in mg/l or percent of saturation.

Dissolved Organic Carbon (DOC)

Fraction of organic carbon remaining in a water sample after filtering the sample, typically using a 0.45 micron filter.

Dissolved Organic Matter (DOM)

Includes any organic components in oceanic water present as purely dissolved material or colloidal matter of size < 1.0 micron.

Down Welling

Circulation pattern in which surface water moves vertically downward.

E

Ebb Current

Water rushing out of a semi-enclosed harbour or bay because of the fall in sea level as a tide trough approaches.

Ebb Tide

The portion of the tidal cycle between high water and the following low water.

Echo Sounder

An instrument for determining the depth of water by measuring the time of travel of a sound-pulse from the surface of a body of water to the bottom and back.

Ecosystem

Functional unit that results from the interactions of abiotic and biotic components; a combination of interacting, interrelated parts that forms a unitary whole. All ecosystems are "open" systems in the sense that energy and matter are transferred in and out. Earth, as a single ecosystem, constantly converts solar energy into myriad organic products and has increased in biological complexity over geologic time.

Eddy

A circular movement in water produced by flows around obstructions or by interacting currents. Such circular movement of water usually forms where two adjacent currents flow in opposite direction, or along the edge of a permanent current.

Effluent

a) A liquid which flows out of a containing space.

b) Sewage, water or other liquid, partially or completely treated, or in its natural state, as the case may be, flowing out of a reservoir, basin or treatment plant or part thereof.

Ekman Spiral

A theoretical model of the effect of wind on water blowing over the ocean. Because of the Coriolis effect, the surface layer is expected to drift at an angle of 45° to the right of the wind in the Northern hemisphere and 45° to the left in the Southern Hemisphere. Water at successively lower layers drifts progressively to the right (N) or left (S), though not as swiftly as the surface flow.

Ekman Transport

This is net water flow, the sum of layer movement due to the Ekman spiral. Theoretically, Ekman transport in the Northern Hemisphere is 90° to the right of wind direction while to the left in the Southern Hemisphere.

El Niño

The periodic warming of the surface waters in the east Pacific that stops upwelling of nutrients.

Endemic Species

Those species that are found exclusively in a particular area and/or environment type. As such, they are of conservation concern because they are not widespread and may be confined to only one or two protected areas.

ENSO

Acronym for the coupled phenomena of El Niño and the Southern Oscillation. El Niño is a southward-flowing nutrient-poor current of warm water off the coast of western South America, caused by a breakdown of trade-wind circulation. Southern Oscillation is a reversal of airflow between normally low atmospheric pressure over the western Pacific and normally high pressure over the Eastern Pacific and is the cause of El Niño.

Enteric

Associated with the gut or intestines of animals or gut products such as faeces.

Epibenthic

The community of organisms (plant or animals) living on top of the sediment or rock surface of the sea floor.

Estuary

A partially enclosed body of water, and its surrounding coastal habitats, where saltwater from the ocean mixes with fresh water from rivers or streams.

Euphotic Zone

The upper part of any water column where light is sufficient for photosynthesis. Even though the depth of this layer varies with water clarity, time of year and cloud cover, but commonly it is about 100-150 m in the open ocean.

Eutrophication

The enrichment of water in streams by substances contained in effluents or in the run-off from agricultural land, especially phosphorus and nitrogen compounds. It can greatly accelerate the growth of plant and other life, causing depletion of oxygen and danger to fish.

Exclusive Economic Zone (EEZ)

The offshore zone claimed by signatories to the 1982 United Nations Draft Convention of the Law of the Sea. The EEZ extends 200 nautical miles (370 km) from a contiguous shoreline.

F

Fathom

A unit of length equal to 1.8 m (6ft); used to measure water depth.

Faecal

It refers to waste matter, faeces, from the gut or gastrointestinal tract of animals.

Filter Feeder

Group of organisms which procure their food particles or minute organisms from water, by randomly passing the water over specialized filtering structure.

Fjords

These are long, narrow valleys with steep sides which are commonly developed by advancing glaciers.

Flood Current

Water rushing into a harbour or bay because of the rise in sea level as a tide crest approaches.

Flood Tide

Rising tide; the period of the tide between low water and the next high water.

G

Geostrophic Current

Oceanic current which developed due to balance between pressure gradient force and Coriolis force is called geostrophic current. Such currents flow clockwise in the Northern Hemisphere and counter clockwise in the Southern Hemisphere.

Grab

Grab is a sediment sampler which designed to collect representative surface sediment sample from the seafloor.

Gravity Wave

Gravity waves developed in a fluid or at interface of two fluid media and whose velocity of propagation is controlled primarily by gravitational force.

Gyres

Large circular pathway of ocean currents; developed due to planetary vorticity and rotating clockwise in the Northern Hemisphere and counter clockwise in the Southern Hemisphere.

H

Habitat

Physically distinct areas of seabed associated with suites of organisms (communities or assemblages) that consistently occur together.

Harmful Algal Bloom

It refers to rapid increase of population of certain micro-algae including cyanobacteria which causes negative impacts to other organisms by production of natural toxins and often associated with mortality of marine organisms.

High Tide

The maximum elevation reached by each rising tide. The high-water position usually corresponds to a tidal crest.

Hydrological Cycle

Movement of water among the land, oceans, and atmosphere due to vertical and horizontal transport, evaporation, and precipitation.

Hydrophobic

Materials that repel water and do not dissolve in water, but tend to dissolve in organic solvents and fats.

Hydrophilic

Materials that have affinity towards water and dissolve in water but not in organic solvents and fats. These materials are found in the water column.

Hydrothermal Fluid

Spring of hot, mineral and gas-rich fluid of magmatic origin found to emit through oceanic hydrothermal vents.

Hydrothermal Vent

Fissure on the floor which spew metal rich hot fluid particularly in mid-oceanic ridges and in some back-arc settings. In most cases, continuous emission of fluid develops columnar chimney-like polymetallic sulphide structures.

Hypoxia

Depletion of dissolved oxygen in water to low levels, for example less than 2.0 mg/l, which develop due to natural or human introduction of materials with high BOD or eutrophication resulting from high nutrient concentrations in water column.

I

Infauna

Animals that live within sediments of the ocean floor.

Internal Wave

Progressive wave occurring at the boundary between liquids of different densities and oscillate within a fluid medium, rather than on its surface.

Interstitial Water

Subsurface water occupying the small void spaces between sediment particles. This is also termed as “pore water”.

Intertidal Zone

This demarks the stretch of coastal zone between the highest high-tide water mark point and the lowest low-tide point on a shoreline.

Invertebrate

An animal without a backbone or spinal column (that is, not vertebrate).

Island Arc

A chain of volcanoes forming an arc-shape, parallel to the boundary of two converging tectonic plates. Magma produced at depth below the overriding plate rises to the surface to form the volcanic islands.

Isohaline

Having a uniform salt content.

K

Kelp

This is the group of large, fast-growing oceanic brown seaweeds (*Phaeophyceae sp.*). Dense underwater growths of large kelp are termed as kelp forest.

L

La Niña

The periodic cooling of the surface waters in the eastern Pacific. An event during which normal tropical Pacific atmospheric and oceanic circulation strengthens and the surface temperature of the eastern South Pacific drops below average values. Usually occurs at the end of an ENSO event.

Littoral Zone

A zone extending seaward from the shoreline to just beyond the breaker zone.

Longshore Current

Current running parallel to shore in the surf zone, caused by the incomplete refraction of waves approaching the beach at an angle.

Low Tide

The minimum elevation reached by each falling tide. The low-water position corresponding to a tidal trough.

M

Macrofauna

Organisms retained on a 0.3 mm to 0.5 mm sieve.

Magma

Molten or semi-molten material within the earth's crust from which igneous rock is formed by cooling.

Marine Protected Area (MPA)

Any intertidal or marine area together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law to protect part of or the entire enclosed environment.

Marine Spatial Planning

A process that brings together multiple users of the ocean including energy, industry, government, conservation, and recreation to make informed and coordinated decisions about how to use marine resources sustainably, based on a spatial framework (maps). It allows planners to consider the cumulative effect of maritime activities and to minimize conflict between multiple uses of the same area. Marine protected areas and fisheries reserves are examples of marine spatial planning components.

Mean Sea Level

The average height of the surface of the sea for all stages of the tide over a 19 year period, usually determined from hourly height readings.

Meiofauna

Animals passing through a 0.3 mm sieve and retained on 0.032 to 0.063 mm sieves (depending on the taxon studied).

Megabenthic Community

Community comprising of megafauna, which are large (+45 kg) benthic organisms.

Megafauna

Animals larger than 45 kg in weight.

Microalgae

Phytoplankton; small plants visible under a microscope, such as diatoms.

Microfauna

Small, microscopic animals (less than 0.063 mm), such as protozoa, nematodes, small arthropods, etc. Microfauna exist in every habitat on earth.

Mineral

A naturally occurring, inorganic, crystalline solid that has a definite chemical composition and characteristic physical properties.

Mineral Reserves

Part of the mineral resource that is valuable and which is technically, economically, and legally feasible to extract.

Methylation

The process in which a compound is modified chemically, often through bacterial action, by the replacement of a hydrogen atom with a methyl group.

Mixed Estuary

Estuary characterized with vertically mixed water having minimum vertical salinity gradient. Generally strong tidal current mixed the surface and bottom water masses and develop uniform density throughout the water column.

Mud Flat

A low lying flat coastal wetland covered with very fine silt (mud) and which on daily basis gets covered with tidal water at high tides and exposed as the tide drops. They are also known as tidal flats.

N

Neap Tide

Tidal phase characterized with least difference between high tide and low tide. Neap tides occur twice in a month immediately after first and third quarters of the moon when the Sun and Moon are positioned at right angles to the Earth.

Nekton

Community of actively swimming animals of any size found in water bodies. This group includes microscopic organisms to the largest whale in the ocean.

Nutrients

These are dissolved chemical components in seawater essential to the survival and growth of marine plant and other lives. Primarily, the major nutrients in seawater include inorganic nitrogen compounds (NO_3^-, NO_2^-), phosphate (PO_4^{3-}) and silicate (SiO_4^{3-}).

Nutrient Cycles

Chemical transformations of nitrogen, phosphorus, silica and other essential elements in continuous cycles between organic and living systems and inorganic and non-living phases in an ecosystem.

O

Ocean

The large body of salt water which occupies two-thirds of the surface of earth.

Oceanic Wave

Oceanic wave is undulatory motion of water found at the ocean surface. It can be defined as one of a series of ridges that moves across the surface of a liquid, especially across any large body of water. Commonly waves are two types which includes progressive and standing waves.

Oceanography

It is a branch of Earth Sciences which deals with multi-disciplinary aspects of ocean studies. This discipline of science is also known as “Oceanology” or “Marine Sciences”.

Oligotrophic

Having a low supply of nutrients and thus a low productivity or biomass.

Ooze

This is composite, fine grain, organic deposit accumulated on the deep oceanic seafloor.

P

Particulate Matter

That matter, exclusive of gases, existing in the non-liquid state, which is dispersed in water to give a heterogeneous mixture.

Particulate Organic Carbon

Fraction of organic carbon remains associated with particulate matter filtered out by using 0.45 micron filters.

Particulate Organic Matter

Material of plant or animal origin that is suspended in water column is termed as particulate organic matter (POM).

Pathogen

Pathogenic or disease-producing organisms.

Pelagic

Living or non-living components which are relating to, or thriving within the water column of oceans (as distinct from benthic) are generally termed as pelagic.

pH

A quantitative expression for the acidity or alkalinity of a solution, and expressed in numeric value which is the negative reciprocal of the logarithm, in base 10, of the hydrogen ion concentration in moles per litre. pH scale ranges from 0 to 14, where pH 7 is neutral, less than 7 is acid, more than 7 is alkaline.

Photic Zone

see **Euphotic Zone**.

Phytoplankton

Free-floating aggregate of microscopic plant community that drifts in sunlit surface waters of the ocean.

Placer Deposit

These are mineral deposits often consisting of economically valuable minerals which commonly originate from weathered terrigenous rocks, and then transported to the sea and gradually concentrated in coastal sediment by wave and current actions.

Plankton

Plant or animal micro-organisms, discrete and free-floating, having relatively small power of locomotion, or which drift in the water by wind or wave-action.

Pollutant

Waste material which causes harm to organisms directly or to their environment.

Pollution

Alteration of the physical, chemical or biological properties of water, or discharge of any sewage or industrial waste or of any liquid, gaseous or solid substances into water as may, or is likely to, create nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to animal life and health.

Polychaete Worm

They are a class of widespread annelid worms with species that live in the coldest ocean temperatures to forms which tolerate the extreme high temperatures near hydrothermal vents. Polychaetes occur throughout the earth's oceans at all depths.

Polymetallic Nodule

Black concretions of manganese and iron oxides and/ or hydroxides, commonly found on deep seafloor. These oxide deposit, also called as ferromanganese nodules are substantially rich with cobalt, nickel and copper.

Pore Water

see **Interstitial Water**.

Potential Temperature

The potential temperature of a parcel of fluid at certain pressure P is the temperature that the parcel would acquire if adiabatically brought to a standard reference pressure, usually 1 000 millibars.

Precipitate

A solid which have come out of an aqueous solution or other fluid.

Primary Production

This is the measure of the rate at which new organic matter is developed through photosynthesis and chemosynthesis in producer organisms based on the oxygen released and carbon taken in; the transformation of chemical or solar energy to biomass.

Pristine

A natural system of water that has not been affected by anthropogenic pollution.

Protozoans

A diverse group of generally motile single celled organisms.

R

Red Tide

Discoloration of surface waters, most frequently in coastal zones, caused by large concentrations of microorganisms. Discoloration of seawater occurs mostly due to flourishing of certain dinoflagellates population. Several species of dinoflagellates produce saxitoxins.

Residence Time

The period of time as long as water is retained in a reservoir, bay or other system, based upon flow rates into and out of the system.

S

Salinity

Number of grams of dissolved salts per thousand grams of water is described as salinity, which usually expressed in parts per thousand. Average salinity of seawater is approximately 3.5 percent, or 35 parts per thousand. This means that for every 1.0 litre of seawater there are 35 g of salts.

Salt Marsh

Parts of coastal mud-flat areas which regularly gets submersed and exposed with tidal waters and covered with various salt-tolerant grasses or herbs.

Salt Wedge

Estuaries with maximum density stratification due to salinity variation in water column. There is least mixing of water between surface and bottom waters.

Sand Dune

Accumulations of wind driven aeolian sand deposit, on the backshore, usually in the form of small hills or ridges, stabilized by vegetation or other control structures. They are commonly found on sandy sea-shores.

Sea Grass

These are marine shallow water plants that grow chiefly on sandy or sand-mud bottom. The common examples are Eel grass (*Zostera sp.*) and Turtle grass (*Thallasia sp.*).

Seascape

The marine version of "landscape"; comprised of suites of habitats that consistently occur together.

Seaweed

Large macro algae or plants which grow in oceans and other fresh water bodies. These include various types of red, brown and green algae.

Secchi Disc

A device used to measure water transparency in all kinds of water bodies. An opaque, black and white disk lowered into water until the demarcation between the black and white portions is no longer visible; this secchi depth is a traditional measurement of water clarity.

Seepage

Slow movement of water through small cracks, pores and interstices of a material, into or out of a body of surface or subsurface water, the loss of water by infiltration into the soil from a canal, ditch, lateral, watercourse, reservoir, storage facility or other body of water, or from a field.

Sessile Organisms

Organisms that are attached to a substrate such as the rocky sea floor and are not able to move around.

Silt

Suspended matter in water, generally inorganic or such matter deposited of a size between clay and fine sand.

Sorption

A general term for the process of absorption and adsorption often used to denote the occurrence of both.

Spawning

The process in which fish, and other aquatic organisms, deposit and fertilize eggs during reproduction.

Spring Tide

Tide that occurs when the difference between high and low tide is maximum, is known as spring tide. Spring tides occur twice in a month, approximately during the full and new moon.

Standing Crop

Total amount of biological material present at any given time.

Stratification

see **Density Stratification**.

Stratified estuary

see **Salt Wedge**.

Storm Surge

Rise or piling-up of water against the shoreline, produced by strong winds blowing towards the shore.

Sublethal

An effect that does not cause death of the organism.

Suspended Solids

a) The quantity of material deposited when a quantity of water, sewage or other liquid is filtered through an asbestos mat in a Gooch crucible.
b) Solids that either float on the surface of, or are in suspension in water, sewage, or other liquids; and which are largely removable by laboratory filtering.

Swamp

A wetland that is permanently or seasonally submerged in shallow water and whose vegetation is dominated by shrubs and trees.

Swell

Oceanic waves that travel long distance from their source area as long waves of the same approximate period.

T

TCO_2

The total amount of carbon dioxide present in any water sample.

Thermocline

The fairly thin zone in the water column of a lake or sea that separates the upper warmer zone, epilimnion, from the lower colder zone, hypolimnion.

Thermohaline Circulation

Ocean circulation that is driven by global density gradients caused by surface heat as well as freshwater fluxes.

Thermophile

Group of bacteria which can survive at high temperature. They are commonly found around the active hydrothermal vents.

Tide

The periodic rising and falling of the water that results from gravitational attraction of the moon and sun acting upon the rotating earth.

Tidal Current

The alternating horizontal movement of water associated with the rise and fall of the tide caused by astronomical tide-producing forces.

Tide Gauge

A device for measuring the rise and fall, and the height of the tide.

Total Alkalinity

Total alkalinity is a chemical measurement of ability of any water sample to neutralize acids. This is the total concentration of bases in water expressed as parts per million (ppm) or milligrams per litre (mg/L) of calcium carbonate ($CaCO_3$). These bases usually include dissolved bicarbonates, carbonates and hydroxide in any water sample.

Total Dissolved Solids (TDS)

It corresponds to the amount of dissolved inorganic and organic solids present in water.

Total Nitrogen

It is the amount of all inorganic and organic form of nitrogen present as dissolved or particulate species in any water sample.

Total Organic Carbon (TOC)

It is the amount of carbon found as organic compound in any water sample. It is often used as a non-specific indicator of water quality.

TOC Analyser

TOC analysers measure the carbon dioxide (CO_2) formed when organic carbon is oxidized and/or when inorganic carbon is acidified. Oxidation is performed either through Platinum catalysed combustion, by heated persulfate, or with a UV/persulfate reactor.

Total Phosphorous

It is the amount of phosphorous present as reactive, condensed and organic phosphorous in any water sample.

Total Suspended Solids (TSS)

It corresponds to the amount of solid in water removable with 0.45 micrometre mesh filter.

Total Viable Count

Total Viable Count (TVC) gives a quantitative idea about the presence of microorganisms such as bacteria, yeast and mould in a sample. To be specific, the count actually represents the number of colony forming units (cfu) per g (or per ml) of the sample.

Toxic

A substance that is poisonous or harmful in common usage.

Toxicity

This is the measure of how poisonous a toxin is to an organism.

Toxin

Compound or element which is toxic or poisonous in common usage. More strictly a toxin is a natural toxicant developed by an organism as opposed to poisons manufactured by man.

Trench

Oceanic trenches are narrow steep-sided depression on the seafloor. Some of the trenches occupy the deepest part of seafloor.

Tsunami

A large, high-velocity wave generated by displacement of the sea floor (such as sudden faulting, land sliding, or volcanic activity); also called seismic sea wave.

Turbidity

The condition of a liquid due to fine visible material in suspension, which may not be of sufficient size to be seen as individual particles by the naked eye but prevents the passage of light through the liquid.

U

Upwelling

This is a coastal process by which deeper water rises to a shallower depth, usually due to Ekman transport that pushes surface water away from the coast. It is most prominent where persistent wind blows parallel to a coastline.

W

Water Quality

A term used to describe the chemical, physical and biological characteristics of water, usually in respect to its suitability for a particular purpose.

Z

Zooplankton

Small, sometimes microscopic, animals that drift in the ocean; protozoa, crustaceans, jellyfish, and other invertebrates that drift at various depths in the water column are zooplankton. There are two major types of zooplankton: those that spend their entire lives as part of the plankton (called Holoplankton) and those that only spend a larval or reproductive stage as part of the plankton (called Meroplankton).

Zooxanthellae

Most of the reef building corals have symbiotic association of certain photosynthetic algae in their body tissue which are known as zooxanthellae. Coral provides shelters to the algae and compounds they need for photosynthesis. In return, algae supply oxygen and photosynthetic product useful for coral growth.

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